

Illinois Commerce Commission  
Assessment of Central Illinois Light Company's  
Reliability Report for the 2000 Period

Pursuant to 83 Ill. Adm. Code 411.140

**December 12, 2001**

## 1. Executive Summary

Pursuant to Section 16-125 of the Illinois Public Utilities Act and the Commission's electric reliability rules as found in 83 Illinois Administrative Code, Part 411, Central Illinois Light Company (CILCO) filed its annual electric reliability report for the year 2000 on June 1, 2001. It filed a revised report on June 29, 2001. This document details Staff's assessment of CILCO's reliability report and evaluation of CILCO's reliability performance for calendar year 2000.

CILCO's initial reliability report for 2000 had five items not in compliance with the requirements of Code Part 411. In its revised report filed June 29, 2001, CILCO addressed the five non-compliant items and made some additional changes in its reliability data by excluding allowable scheduled interruptions.

For 2000, CILCO's system-wide average interruption frequency index (SAIFI) was tied with Illinois Power for the highest among all reporting utilities in Illinois. There is an apparent trend of moderate improvement in this index for CILCO from 1998 through 2000. CILCO was in the middle of the group in terms of average frequency of customer interruptions (CAIFI) and average duration of customer interruptions (CAIDI). CILCO's CAIDI for 2000 was 23% worse than in 1999, however, and excluding year 1998, is trending generally upward.

Notable in CILCO's 2000 reliability report are the high incidences of animal related (38.8%) and tree related (29.0%) causes of controllable interruptions. There are also some instances where the causes of some of the outages of worst performing circuits are not addressed in CILCO's planned actions.

CILCO plans to continue its current practice of installing an animal guard on any involved equipment after animal-related outages occur. CILCO's planned actions do not go far enough, however, to proactively remedy the high number of animal-caused interruptions. Perhaps an investigation of areas where animals have caused interruptions and a more widespread application of animal guards in those areas would help.

CILCO acknowledges that the targeted tree trimming cycle of four years has not been met in recent years, and the high percentage of interruptions attributed to tree problems in 2000 attests to this. CILCO has significantly increased its tree trimming budget and its number of contract tree trimming crews from prior years. CILCO is not keeping up with its own schedule to achieve a four-year tree trimming cycle by December 31, 2002, however, as ordered by the Commission in Docket 00-0699. CILCO is urged to do whatever is necessary to assure compliance with the order. Staff will continue to monitor CILCO's progress in this matter.

CILCO has improved its underground cable replacement policy to apply to any sections that have experienced 3 cable failures in the life of the cable, and has started a program to investigate the installation of mid-circuit reclosers on distribution circuits experiencing a large number of interruptions. CILCO also listed numerous other ongoing operating and

maintenance activities that the company performs to improve reliability, including four specific projects related to improvement of system management. These are positive steps toward reliability improvement.

Most of the work described in CILCO's 1999 overall plan was completed in 2000. Deviations from the plan seemed reasonable. CILCO did not plan any work to address problems with its 1999 worst performing circuits, however.

While CILCO claims to inspect its distribution circuits by driving and/or foot patrols and, specifically, claims to have patrolled its year 2000 worst performing circuits and fixed major defects in 1999, 2000, and 2001, it is apparently not doing a good job of that. Staff found numerous severe structural problems on two of the four CILCO circuits inspected this year. Many of these problems, while not necessarily causes of poor performance in 2000, will have adverse effects on reliability and public safety in the future. (Photos of some of the structural problems found are included in this report, and summaries of problems noted by Staff on CILCO circuits inspected this year are included as Attachments A, B, C, and D). CILCO should perform field inspections of all circuits on a regular basis and correct the problems found which can significantly affect reliability or public safety.

While the above discussion covers the most significant items in a general way, a total of nine specific recommendations are included in this Staff report, summarized beginning on page 15.

## Table of Contents

1. Executive Summary .....	i
2. Introduction .....	1
3. Assessment of CILCO's 2000 Reliability Report .....	1
4. CILCO's Historical Performance Relative to Established Reliability Targets .....	2
5. Trends in CILCO's Reliability Performance .....	10
6. CILCO's Plan to Maintain or Improve Reliability .....	13
7. Potential Reliability Problems and Risks .....	14
8. Review of CILCO's Implementation Plan for the Previous Reporting Period .....	15
9. Summary of Recommendations .....	15
10. Attachment A: Summary of Field Inspection, Eureka Circuit 00-036-002	
11. Attachment B: Summary of Field Inspection, Groveland Circuit 00-181-001	
12. Attachment C: Summary of Field Inspection, Stark (Wyoming) Circuit 00-182-002	
13. Attachment D: Summary of Field Inspection, Washburn Circuit 00-328-124	

## **2. Introduction**

Beginning with the year 1999, and at least every three years thereafter, 83 Illinois Administrative Code Part 411.140 requires the Commission to assess the annual reliability report of each jurisdictional entity and evaluate its reliability performance. Code Part 411.140 requires the Commission evaluation to:

- A) Assess the reliability report of each entity.
- B) Assess the jurisdictional entity's historical performance relative to established reliability targets.
- C) Identify trends in the jurisdictional entity's reliability performance.
- D) Evaluate the jurisdictional entity's plan to maintain or improve reliability.
- E) Include specific identification, assessment, and recommendations pertaining to any potential reliability problems and risks that the Commission has identified as a result of its evaluation.
- F) Include a review of the jurisdictional entity's implementation of its plan for the previous reporting period.

This document assesses the annual reliability report covering calendar year 2000 filed by Central Illinois Light Company ("CILCO") on June 1, 2001, (revised and re-submitted June 29, 2001), and evaluates CILCO's reliability performance for calendar year 2000. This report is organized to follow the above listed requirements.

## **3. Assessment of CILCO's 2000 Reliability Report**

CILCO provides electric service to approximately 200,793 customers in 3700 square miles and 136 communities in Illinois. CILCO's electric system consists of 108 distribution substations with 299 feeders, 14 transmission and switching stations, and 35 industrial/wholesale substations. Approximately 62.9% of the distribution feeders are urban in nature. The company's service area contains the cities of Peoria, East Peoria, Pekin, Lincoln, the outlying areas of Springfield, and other small communities in central Illinois. About 75.2% of CILCO's distribution system is overhead, with the remaining 24.8% being underground.

CILCO prepared and filed its 2000 Reliability Report in compliance with Section 16-125 of the Public Utilities Act and the Commission's electric reliability rules as found in 83 Illinois Administrative Code, Part 411. CILCO filed a revised report on June 29, 2001, addressing five issues not in compliance with Code Part 411 which were raised by ICC Staff in an Email to CILCO dated June 7, 2001. In its revised report, CILCO "also revised its system and worst circuit reliability indices to exclude scheduled interruptions initiated by the Company for repair, maintenance, or reinforcement of its facilities."

In last year's ICC assessment report (for year 1999), it was noted that CILCO's reliability appeared to be declining. CILCO claimed the declining numbers at that time were due to weather and inaccurate record-keeping in its system. In this year's reliability report, CILCO stated that "a new outage reporting system was instituted starting in 2000. As a result, variances between this year's annual report and last year's in some cases may not be related to actual system changes but more to the use of different reporting programs. CILCO feels that the statistics in this year's report accurately reflect the actual interruptions experienced by our customers."

Notable in CILCO's 2000 reliability report are the high incidences of animal related customer interruptions (38.8% of all controllable customer interruptions) and tree related customer interruptions (29.0% of all controllable customer interruptions). There are also some instances where the causes of some of the outages of worst performing circuits are not addressed in CILCO's planned actions. See additional discussion of these issues below in relation to the data shown in Table 3.

Part 411.120(b)(3)(G) requires the utilities to report on the age of their distribution equipment. CILCO estimates that the approximate average age of its distribution facilities is 14.6 years with an approximate average remaining life of 22.5 years. These figures are based on CILCO's last depreciation study completed on December 31, 1997.

#### **4. CILCO's Historical Performance Relative to Established Reliability Targets**

Part 411.140(b)(4)(A-C) establishes reliability targets that jurisdictional entities must strive to meet. These targets specify limitations on customer interruptions as well as hours of interruption that a utility should strive not to exceed on a per customer basis. However, Part 411.120(b)(3)(K)&(L) does not require the utility to report individual customer outage data until the 2001 reliability report, which will be filed on June 1, 2002. The customer service reliability targets are listed in Table 1.

**Table 1**  
**CUSTOMER SERVICE RELIABILITY TARGETS**

Immediate primary source of service operation voltage	Maximum number of controllable interruptions in each of the last three consecutive years	Maximum hours of total interruption duration due to controllable interruptions in each of the last three years
69kV or above	3	9
Between 15kV & 69kV	4	12
15kV or below	6	18

Table 2 below shows CILCO's system-wide reliability indices for calendar year 2000 compared to other Illinois electric utilities. This data indicates that CILCO was tied with Illinois Power for the least reliable electric utility in Illinois in terms of average frequency of system interruptions (SAIFI) and was in the middle of the group in terms of average

frequency of customer interruptions (CAIFI) during 2000. It also indicates that CILCO was in the middle of the group in terms of average duration of customer interruptions (CAIDI) in 2000.

The comparison of system-wide reliability indices for Illinois electric utilities should indicate relative reliability levels achieved. The reader of this report should, however, keep in mind that each Illinois electric utility has a unique electric system, a unique group of customers, and a unique method of defining, recording, and reporting the interruption data. These differences make precise utility-to-utility comparisons difficult.

**Table 2**  
**ILLINOIS UTILITY RELIABILITY INDICES**  
**CALENDAR YEAR 2000**

	SAIFI	CAIDI (minutes)	CAIFI
AmerenCIPS	1.54	103.89	2.23
AmerenUE	1.14	219	1.91
<b>CILCO</b>	<b>1.65</b>	<b>157.8</b>	<b>2.18</b>
ComEd	1.43	144	2.08
Illinois Power	1.65	168	2.47
MidAmerican	1.521	121.22	2.16

SAIFI: System Average Interruption Frequency Index. This represents the number of customer interruptions divided by total system customers.

CAIDI: Customer Average Interruption Duration Index. This represents, for the group of customers that actually had one or more interruptions, the average interruption duration.

CAIFI: Customer Average Interruption Frequency Index. This represents the interruption frequency for the group of customers that had interruptions. A CAIFI index much higher than SAIFI suggests that subsets of customers experienced significantly more frequent interruptions than the overall system average.

Table 3 below shows a breakdown of the 5 causes of controllable customer interruptions in 2000, as reported by CILCO, by number and as a percentage of the total. Fewer interruption cause categories were listed than what most utilities report, and fewer were listed than what CILCO reported for prior years.

**Table 3**  
**CONTROLLABLE INTERRUPTIONS BY CAUSE**

<b>Interruption Cause Category</b>	<b>Number of Interruptions</b>	<b>Percent of Interruptions</b>
Animal Related	147	38.8%
Employee/Contractor Personnel Errors	79	20.8%
Tree Related	110	29.0%
Underground Equipment Related	40	10.6%
Transmission/Substation Equipment	3	0.8%
<b>TOTAL:</b>	<b>379</b>	<b>100.0%</b>

38.8% of CILCO's controllable interruptions in 2000 were attributed to animals. While CILCO claims that animal guards are "standard equipment on all new distribution transformers" and that its "current practice is to install an animal guard on any equipment after animal-related outages occur, if such installation is feasible", it seems that even more attention should be paid to this problem. Perhaps an investigation of areas where animals have caused interruptions and a more widespread application of animal guards in those areas would help. The Commission urges CILCO to do more to reduce the number of animal-caused interruptions.

29% of CILCO's controllable interruptions in 2000 were attributed to trees. This is not surprising, based upon the tree inspections ICC Staff performed in CILCO's service territory in 2000. CILCO has been ordered by the Commission, in Docket 00-0699, to catch up on its tree trimming program such that it will be back on a four-year tree trimming cycle by December 31, 2002. Staff has concerns about CILCO's progress to date toward compliance with this order. While CILCO has established a budget, contract staffing level, and schedule to meet the target date ordered by the Commission, its quarterly status reports through the third quarter of 2001 indicate that CILCO is falling behind its own schedule to meet the target date. The Commission urges CILCO to do whatever is necessary to assure compliance with the order in Docket 00-0699. ICC Staff will continue to monitor CILCO's progress in this matter.

Part 411.120 (b)(3)(I)&(J) requires the reporting utility to list its worst-performing circuits (subsection I) and then state (subsection J) what corrective actions are planned to improve those circuits' performance. Table 4 below shows CILCO circuits with the highest SAIFI indices for 2000 (indicating highest frequency of total circuit outages).

**Table 4**  
**CILCO CIRCUITS WITH HIGHEST SAIFI, CALENDAR YEAR 2000**

<b>CIRCUIT</b>	<b>SAIFI</b>	<b>CAIFI</b>
00-036-002 (Eureka) *	5.96	5.96
00-181-001 (Groveland) *	5.21	5.35
00-182-002 (Wyoming) *	5.04	4.96

While CILCO described planned corrective actions for each of the worst performing circuits, there were some cases where some of the interruption causes were not addressed in the planned actions.

As part of its review of CILCO's 2000 reliability, Staff engineers inspected three of CILCO's reported worst performing circuits, marked with asterisks (\*) in Table 4. Staff also inspected one additional "next-worst SAIFI circuit", Circuit 00-328-124 (Washburn), which had a SAIFI of 3.87, a CAIFI of 3.89, and a CAIDI of 332 minutes in 2000. The inspections allow Staff to verify that work was performed on the circuits as stated in the reliability report and additional data requests and to see if there are any apparent reasons for the poor performance of these circuits. For example, Staff looked for poor tree trimming practices, broken poles, split crossarms, damaged electrical devices, etc. Summaries of items noted by Staff during the distribution circuit field inspection of the CILCO circuits inspected this year are included in this report as Attachments A, B, C, and D. (As mentioned to CILCO when providing them with a copy of Attachments A, B, C, and D in October, this summary



for each of the circuits inspected represents typical observations noted by ICC Staff engineers during the field inspections and does not represent all of the problems or potential problems that may exist on each circuit.)

Generally, the maps provided by CILCO for the circuit inspections were very difficult to use, with multiple circuits on the same map, duplicate maps, and other maps not needed. Many (most) of the roads and highways were not labeled, making the maps difficult to follow. CILCO or contract crews may have similar difficulty in using the maps, thus causing delays in restoring customer service during outage conditions. The Commission urges CILCO to review its circuit maps and to make them more user friendly.

As another general note, most of the downguys on all of the CILCO circuits inspected did not have guy guards or guy markers installed. While this is more of a public safety concern than a reliability concern, the Commission urges CILCO to consider installing guy markers on its downguys wherever they are exposed to public or private traffic, including such things as normal vehicular traffic, farm operations, mowing operations, snowmobiles, etc.

Circuit 00-036-002 is a 13.2 kV circuit serving portions of the town of Eureka (east of Peoria) and a rural area mostly east and south of Eureka. During the field inspection of this circuit in July, 2001, Staff noted that additional lightning arresters and grounds have been added at several locations. Trees were close to the primary at one location, but the tree trimming on this circuit was generally in good condition. Some split pole tops (see Figure 1) and split crossarms were observed as noted in the summary for this circuit, Attachment A, but the inspection did not reveal an obvious reason for the circuit's poor performance in 2000.

**Figure 1**  
**Split Pole Top**  
**Eureka Circuit 00-036-002**



Circuit 00-181-001 is a 13.2 kV circuit serving the town of Groveland (south of Peoria) and rural areas surrounding Groveland. A significant portion of this circuit is underground. During the field inspection of this circuit in July, 2001, Staff noted that trees were into the primary in a few locations, but the overhead portions of this circuit were generally trimmed and in good shape. At one location there was evidence of electrical flashover of equipment on a primary riser pole (see Figure 2). Lightning was listed as a reason for this circuit being classified as a worst performing circuit in 2000, and this is evidence of that problem. No improvement in lightning protection was mentioned in CILCO's plan to improve the reliability of this circuit, nor were new lightning arrester installations noted during Staff's field inspection of this circuit, however. The Commission urges CILCO to consider improving lightning protection on this circuit. See Attachment B for a summary of problems noted during the field inspection of this circuit.

**Figure 2**  
**Flashed Potheads, Cutouts, & Arresters**  
**Groveland Circuit 00-181-001**

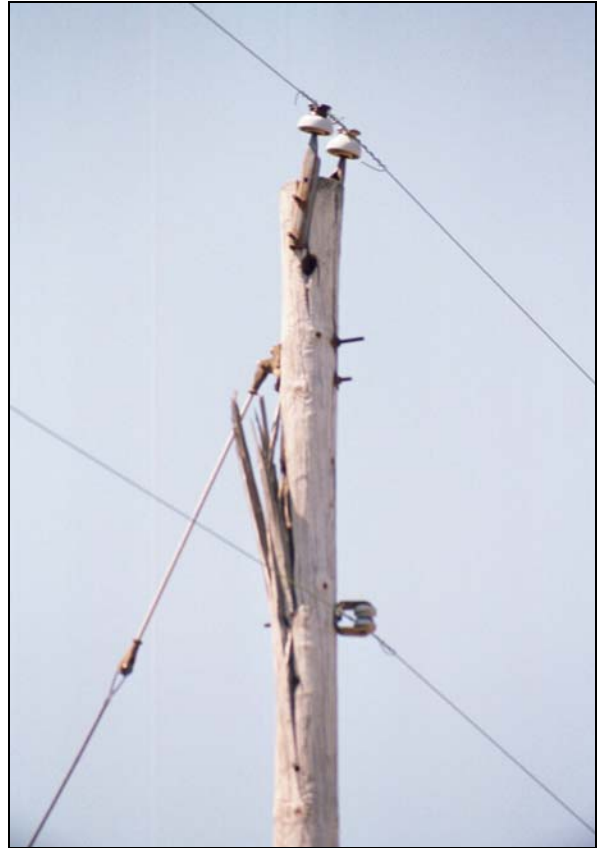


Circuit 00-182-002 is a 12.5 kV circuit fed from CILCO's Stark substation and serving a rural area mostly south of Wyoming (northwest of Peoria). During the field inspection of this circuit in August, 2001, Staff observed that lightning arresters have been added at several locations throughout the circuit, even though that was not mentioned in CILCO's plan to improve the reliability of this circuit. Several tree problems and numerous structural problems were observed on this circuit, as noted in the summary for this circuit, Attachment C. Some of the more common structural problems included split pole tops, shell rotted poles, woodpecker holes in poles, and lightning damaged poles (see Figures 3 and 4). These problems and the large rural exposure are likely reasons for the poor performance of this circuit in 2000 and potential poor performance in the future. The Commission urges CILCO to address the tree and structural problems on this circuit in an effort to prevent it from repeating as a worst performing circuit.

**Figure 3**  
**Split Pole Top**  
**Circuit 00-182-002**



**Figure 4**  
**Woodpecker Hole & Lightning Damage**  
**Circuit 00-182-002**



Circuit 00-328-124 is a 12.5 kV circuit serving the towns of Washburn, LaRose, Low Point, and Cazenovia (all northeast of Peoria) and a large rural area surrounding those communities. While not one of the 1% worst performing circuits required to be identified in the annual reliability report, this circuit was CILCO's "next-worst SAIFI circuit" in 2000. The field inspection of this circuit by Staff in July, 2001, revealed an extensive list of potential reliability and safety problems, as noted in the summary for this circuit, Attachment D. Examples of the widespread structural problems noted include 29 split crossarms, 37 other locations with pins fallen through the arms (indicating crossarm rot), and 12 locations with damaged crossarm braces. 36 badly shell rotted poles, 30 split pole tops, and 21 locations with apparent lightning damage to poles were noted. 14 poles with woodpecker damage were noted. Sample photographs of some of these problems are provided in Figures 5 through 13.

**Figure 5**  
**Shell Rotted Pole w/ Splintered Crossarm & Brace (Probable Lightning Damage)**  
**Both Photos Are of Same Pole, Treated in 1954 & 1988, Circuit 00-328-124**



**Figure 7**  
**Lightning Damaged Structure**  
**Circuit 00-328-124**



**Figure 8**  
**Split Pole Top**  
**Circuit 00-328-124**





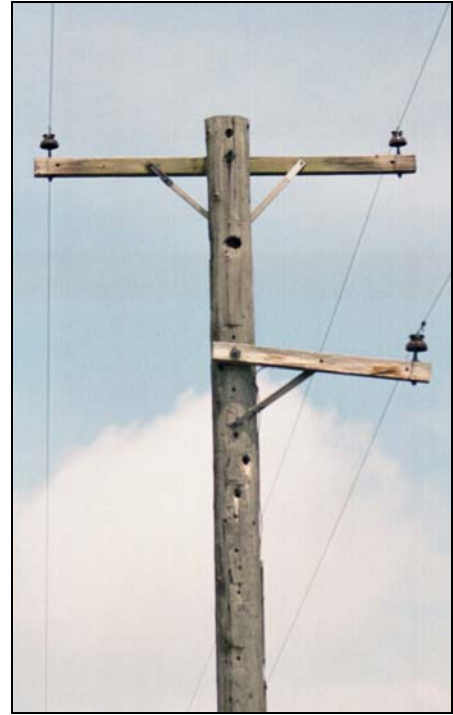
**Figure 9**  
**Split, Shell Rotted Pole**  
**Circuit 00-328-124**



**Figure 10**  
**Lightning Damaged Pole**  
**Circuit 00-328-124**



**Figure 11**  
**Woodpecker Holes**  
**Circuit 00-328-124**



**Figure 12**  
**Split Crossarm & Pin Through Arm**  
**Circuit 00-328-124**



**Figure 13**  
**Wood Pins Through Rotted Crossarm**  
**Circuit 00-328-124**



While the number of problems noted on this and on other circuits in this report do not represent all of the problems or potential problems that may exist on any of the circuits, it is apparent that CILCO circuit 00-328-124 has more to be concerned about than any of the others inspected by Staff in CILCO's service territory this year. The Commission urges CILCO to perform its own inspection of this circuit and to promptly take appropriate action to fix the problems identified which may have an adverse effect on reliability or public safety.

Table 5 below shows CILCO's worst performing circuits in 2000 as indicated by their high CAIDI indices (indicating highest average duration of customer interruptions). It is notable that these CAIDI indices are significantly worse than the CAIDI worst performers in 1999, with the worst circuit of 2000 having a CAIDI 44% higher than the worst circuit of 1999. The second and third worst circuits in 2000 had CAIDI indices 96% and 41% higher than their counterparts in 1999, respectively. The CILCO company-wide CAIDI for 2000 was 23% higher than in 1999.

**Table 5**  
**CILCO CIRCUITS WITH HIGHEST CAIDI, CALENDAR YEAR 2000**

<b><u>CIRCUIT</u></b>	<b><u>CAIDI (hours)</u></b>	<b><u>CAIDI (minutes)</u></b>
00-353-002	17.49	1,049
00-110-001	16.85	1,011
00-388-001	11.95	717

Table 6 below shows CILCO's worst performing circuits in 2000 as indicated by their high CAIFI indices (indicating highest average frequency of customer interruptions) as reported by CILCO in its 2000 Reliability Report. Note that none of these circuits appear on the highest CAIDI list and all are duplicated on the highest SAIFI list.

**Table 6**  
**CILCO CIRCUITS WITH HIGHEST CAIFI, CALENDAR YEAR 2000**

<b><u>CIRCUIT</u></b>	<b><u>SAIFI</u></b>	<b><u>CAIFI</u></b>
00-036-002 (Eureka)	5.96	5.96
00-181-001 (Groveland)	5.21	5.35
00-182-002 (Wyoming)	5.04	4.96

## 5. Trends in CILCO's Reliability Performance

Figure 14 below shows a comparison of SAIFI values reported by the Illinois utilities for years 1998, 1999, and 2000. Storms throughout the state in 1998 increased all utilities' SAIFI numbers. CILCO's reported 2000 reliability performance did not change greatly from 1999. While there is an apparent trend of SAIFI improvement from 1998 through 2000, CILCO still has the highest SAIFI (tied with Illinois Power) compared to the other utilities.

**Figure 14**

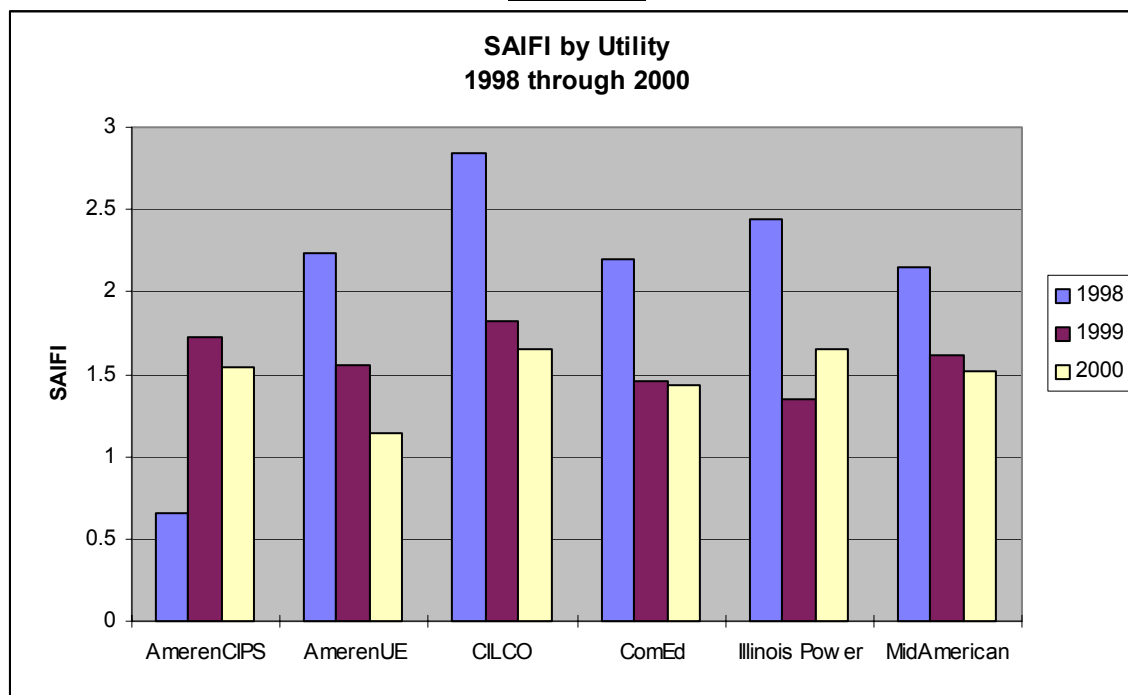


Figure 15 below shows CILCO's SAIFI indices over the past four years. CILCO's reported SAIFI for 2000 indicates a moderate improvement from 1999 in the frequency of interruptions, and the overall trend shows improvement since 1998. Keeping in mind the changes in CILCO's outage reporting system discussed earlier in this report, however, it is unclear to what degree this represents improvement in the actual electric system reliability.

**Figure 15**

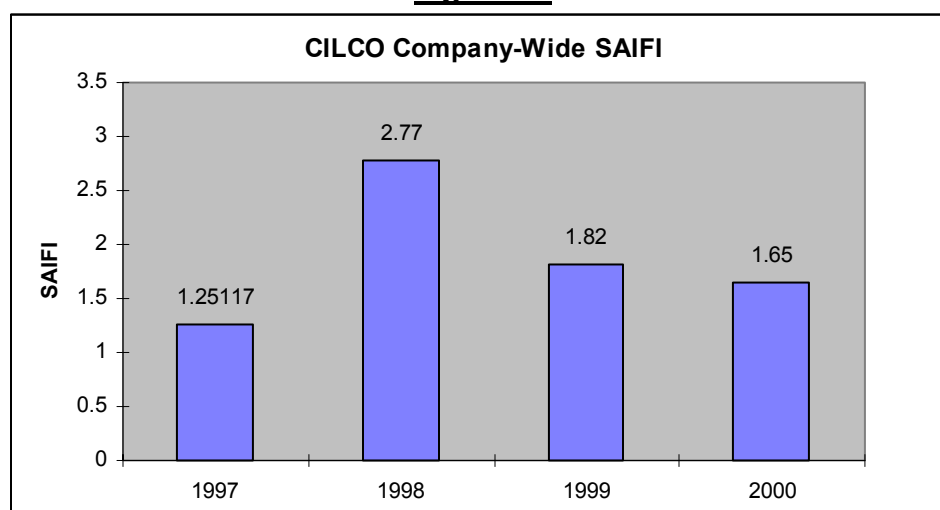


Figure 16 below shows CILCO's system wide CAIDI statistics over the past four years. While there is not a definite, clear trend of these values for CILCO, the 2000 CAIDI index is 23% worse than the one for 1999. Except for 1998, when an unusual number of storms hit all Illinois utilities, the CAIDI trend for CILCO seems to be generally upward.

**Figure 16**

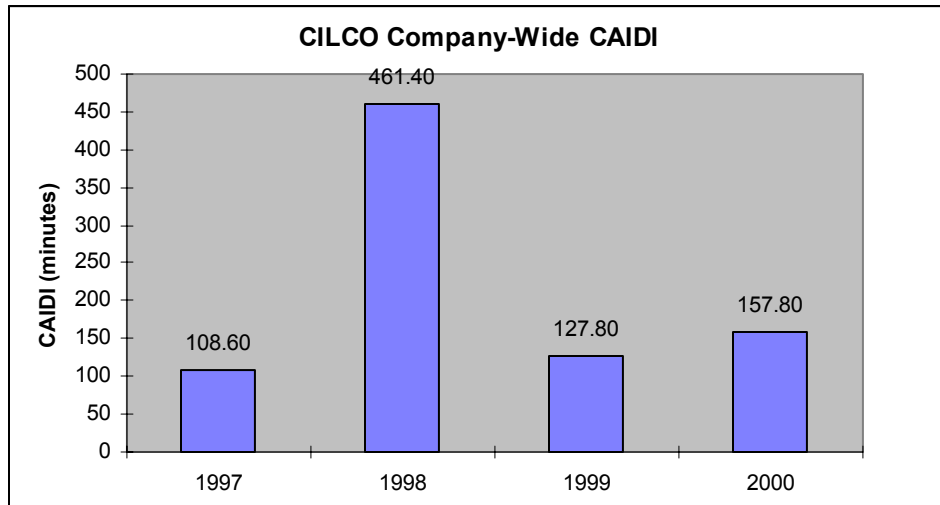


Figure 17 below shows the SAIFI index of CILCO's single worst performing circuit as reported over each of the last four years. For this statistic, the trend is downward (improving) since 1998.

**Figure 17**

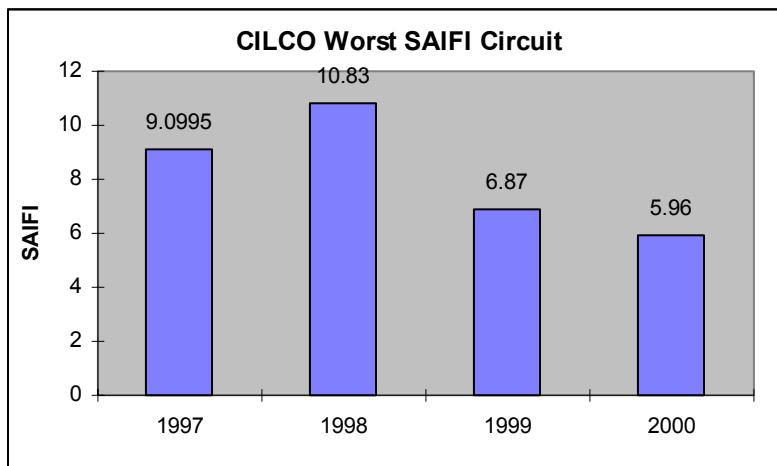
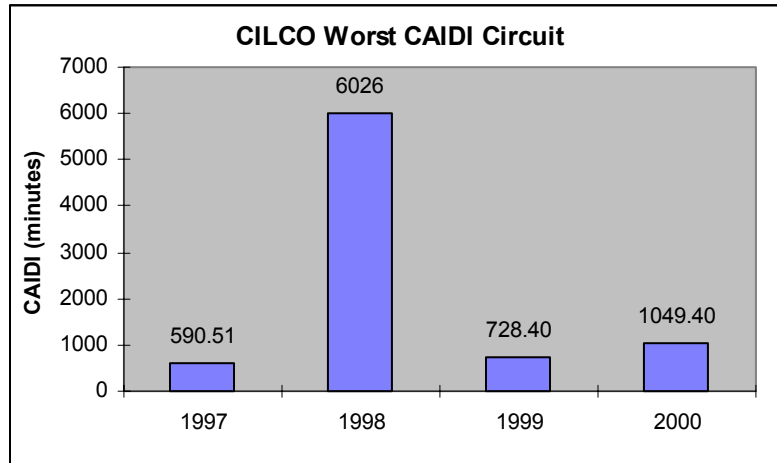


Figure 18 below shows the CAIDI index of CILCO's single worst performing circuit as reported over each of the last four years. Like the company-wide CAIDI index discussed earlier, the trend for CILCO's worst-circuit CAIDI is also generally upward.



**Figure 18**



The Commission finds that, overall, the statistics provided in CILCO's 2000 reliability report indicate improvement in the frequency of interruptions when compared to recent past years, but a worsening in the average duration of the interruptions during that same period. Because of changes in CILCO's outage reporting system in 2000, it is unclear to what degree the actual electric system reliability has changed.

## 6. CILCO's Plan to Maintain or Improve Reliability

CILCO acknowledges that the targeted tree trimming cycle of four years has not been met during the reporting period of 1996-1999. The 2000 line clearance program funding was increased by 30% over the 1999 budget. CILCO claims to recognize the need to attain a four-year trimming cycle and has increased its 2001 tree trimming budget by \$1.8 million over the 2000 budget and the number of contract crews from 20 to 31 to enable attainment of a four-year cycle by the end of 2002.

CILCO plans to continue its current practice of installing an animal guard on any involved equipment after animal-related outages occur, though this effort may need to be expanded as discussed earlier in this report.

CILCO has recently improved its underground cable replacement policy to apply to any sections that have experienced 3 cable failures in the life of the cable.

CILCO has also recently started a program to investigate the installation of mid-circuit reclosers on those distribution circuits experiencing a large number of interruptions.

CILCO provided the following budget information for its four year reliability plan:

YEAR	CAPITAL	O & M	TOTAL
2001	\$19,896,230	\$18,583,603	\$38,479,833
2002	\$19,896,230	\$18,583,603	\$38,479,833
2003	\$19,896,230	\$18,583,603	\$38,479,833
2004	\$19,896,230	\$18,583,603	\$38,479,833

These budget amounts represent an approximate increase of 5.2% in capital and 12.6% in O&M over the budget amounts provided for the first year of CILCO's 1999 reliability report. The total budget is up about 9% from the earlier report. Increases in the capital budget include \$455,000 in the general improvement budget, \$1,080,375 for cable replacement, and \$400,000 for substation construction. Major increases in the O&M budget include \$1,745,987 for tree trimming and \$1,348,854 for substation maintenance.

CILCO listed numerous ongoing operating and maintenance activities that the company performs to improve reliability. Four specific projects related to improvement of system management were also described in CILCO's reliability report:

- In 2000, the remaining portion of the new Energy Management System was completed and is now in service. The new system enhances CILCO's ability to monitor and control the safety, reliability, and security of the electric system.
- On January 25, 2000, the Automated Mapping / Facilities Management / Geographical Information System Project for the Electric Transmission and Primary System was completed. This project is expected to improve the management of service restoration, ICC reporting, and distribution planning.
- In 2000, CILCO successfully implemented changes to its existing Customer Information System to accommodate functionality that allowed all non-residential customers to participate in deregulation. Changes were also made to accommodate meter service providers and for the unbundling of meter services.
- In June of 1998 a new Mobile Data System was installed to improve customer service by scheduling appointments better, thus helping meet appointments on time. Mobile data improves work management practices for field service technicians by improving dispatching and routing of orders. In 2001 an upgrade is being installed to increase the functionality of the system.

## **7. Potential Reliability Problems and Risks**

In its 2000 reliability report, CILCO reported that 29% of its controllable interruptions in 2000 were tree related. CILCO acknowledges that it is behind in tree trimming. It has been ordered by the Commission, in Docket 00-0699, to catch up on its tree trimming such that it is on a four-year trimming cycle by December 31, 2002. In 2001, CILCO increased its funding for tree trimming by \$1.8 million and increased the number of contract line clearance crews from 20 to 31 (adding the 31<sup>st</sup> crew on 10/15/01). In its 2000 reliability report CILCO stated that "provided sufficient qualified manpower can be obtained and retained, this level of funding should enable CILCO to attain a four-year trim cycle by the end of 2002." However, in its first two quarterly tree trimming status reports following the Commission order on rehearing (covering the second and third quarters of 2001), CILCO's data indicated that it is not adhering to its own schedule to assure success in meeting the tree trimming target as ordered by the Commission. Staff has a growing concern that CILCO is not placing enough emphasis on the tree trimming recovery program to achieve

completion by the target date. The Commission urges CILCO to do whatever necessary to meet the requirements of the Commission order in Docket 00-0699.

An unusually high percentage (38.8% in 2000) of controllable customer interruptions also seem to be caused by animals. More attention should be paid to this problem. Perhaps an investigation of areas where animal-caused interruptions have occurred and a more widespread application of animal guards in those areas would help. The Commission urges CILCO to do more to reduce the number of animal-caused interruptions.

CILCO should address all causes of outages of worst-performing circuits in its planned actions for improving the performance those circuits. It should also perform field inspections of all circuits on a regular basis and correct the problems found which can significantly affect reliability or public safety.

## **8. Review of CILCO's Implementation Plan for the Previous Reporting Period.**

A report on the significant deviations from CILCO's 1999 plan was included in its 2000 reliability report. Most of the projects in the described plan were completed during 2000. The deviations from the plan seemed reasonable.

CILCO did not describe any planned actions to improve the performance of any of its 1999 worst performing circuits in its 1999 reliability report. In response to a Staff data request on July 6, 2000, CILCO again stated for each of the 1999 worst performing circuits that "no specific additional work is scheduled for this feeder at this time." Perhaps by coincidence, none of the 1999 worst performing circuits were repeated on the 2000 list.

## **9. Summary of Recommendations**

First, CILCO should do whatever is necessary to assure that it is back on a four-year tree trimming cycle by December 31, 2002, as ordered by the Commission in Docket 00-0699.

Second, CILCO should expand its program to reduce the number of animal-caused interruptions. This may require an investigation of areas where animals have caused interruptions and a more widespread application of animal guards in those areas.

Third, CILCO should address all causes of interruptions in its action plans for worst performing circuits. (This does not necessarily mean that a corrective action should be taken for every interruption cause, but that all causes should be considered in development of the action plans).

Fourth, CILCO should review its circuit maps and make them more user friendly.

Fifth, CILCO should consider installing guy markers on its downguys that are exposed to public or private traffic, including such things as normal vehicular traffic, farm operations, mowing operations, snowmobiles, etc.

Sixth, CILCO should consider improving lightning protection on Eureka circuit 00-036-002.

Seventh, CILCO should address the tree and structural problems on circuit 00-182-002 south of Wyoming.

Eighth, CILCO should perform an inspection of Washburn circuit 00-328-124 and take prompt, appropriate action to fix the structural or other problems that may have an adverse effect on reliability or public safety.

Ninth, CILCO should perform field inspections of all circuits on a regular basis and correct the problems found which can significantly affect reliability or public safety.